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CAUSES OF EPIDEMICS.

*Remarks on the Causes of Epidemics.* By JOSEPH COMSTOCK, M.D.

[Communicated for the Boston Medical and Surgical Journal.]

THERE is such a general diffusion of all kinds of knowledge, upon all subjects, at the present day, that when a member of the medical profession is obliged to confess his ignorance of the cause of diseases, he cannot but feel that his scientific acquirements and his amount of professional knowledge may be rather lowly esteemed; that in fact it will be inferred, that he has read and observed but little: or, on the other hand, that if he has read much, or all that has been written upon the subject of causes, the very profession of which he is a member is at a low ebb, in not being able to ascertain a desideratum so immensely important. I must confess, for myself, that I felt no slight mortification, when being lately questioned, by a member of the clerical profession, as to the causes of cholera, and not being able very readily to satisfy either myself or my querist, to hear the reply—that *they were in the same state as the causes of yellow and typhous fever, which had been long before the medical public, but were still unascertained.*

It must be confessed, that upon the subject of the causes of all these, and some other diseases, there is no one paramount principle established. We are still wandering in a mazy labyrinth; blind, and without a leader. It may not be going too far to predict, that any two of the profession, who might happen to be discoursing on the subject of causes, in company with men of other professions, would be found to be very discrepant in their opinions, and perhaps to end in the stale resort of a reference to the occult, unknown, and unascertained qualities of the atmosphere. This last, this dernier resort, although it has the authority of Sydenham, is in truth and in fact nothing more than a confession of ignorance, total ignorance! And however thick the veil may have been when used by that author, one hundred and sixty years ago, it is certainly worn rather thin in our day, having been in use ever since.

The subject of causes is acknowledged to be the most intricate and perplexing of any one which is connected with the healing art; and therefore, doubtless, the most unfit to be meddled with by the present

writer. Yet, mites make mountains ; and had he the command of all the talents, leisure, and pens, of the whole medical world, he would concentrate the whole in the investigation and illumination of *causes*. It is time, high time, that this opprobrium was removed by the substitution of such principles as are sufficiently plausible to produce union of sentiment, if absolute truth is impossible. The present writer can promise nothing more than an abortive attempt ; but if he should prevail on the Sampsons, Goliaths, and lions of the profession, to take the field, he will have done much.

That all diseases must have had a spontaneous, atmospheric, or *non-contagious* origin, at first, is self-evident, however contagious they may have afterwards become.

Smallpox was well known to Sydenham ; but that it was contagious, he appears not to have surmised. He only knew it as an epidemic or sporadic disease, like pleurisy or remittent fever.

When epidemic, we are told by him that it was *mild and regular* ; and further, that this mild regular smallpox had a particular season, in which it became epidemic. This, he says, was about the vernal equinox ; when it began earlier in the year, as in January, it was more severe, and apt to be more irregular. Has the medical world been thus long deceived respecting the genius and talents of Sydenham ? Was the smallpox as contagious then as it is now, and had he so little sagacity as not to be in the least aware of it ?

I think it immensely more probable that it was, in his time, in most instances, of non-contagious origin—and contagious only contingently. That he was a correct and accurate observer, will hardly at this time be questioned. His assertion, that when smallpox is an *epidemic*, it is also *mild and regular*, is a trait in its character in which it differs from most or all other epidemic diseases ; but it is a fact which has been noticed in modern times, and in this State. I will advert to an instance. Some thirty-five or forty years past, it appeared epidemically in the town of Stonington, and in the adjoining towns of Westerly and Hopkinton, in the State of Rhode Island. Dr. Daniel Lee, now deceased, resided at that period in Westerly. He was an eminent and excellent physician, and I learned from him these facts. He attended fifteen hundred patients, most of whom had it by inoculation by himself and pupils. But its *origin* was spontaneous, or at least could not be traced to any source of contagion ; and it, at several different times, appeared anew in persons and families, *spontaneously*, during the epidemic. But what was most noticeable was, that whether it was casual or inoculated, it was *uniformly mild*. Its occasional casual appearance without contagion, in other places and at other periods, is a fact well known in the medical world. Nor is proof lacking of the same *non-contagious* origin of measles and hooping cough, in particular seasons and locations.

The proofs also before the public, as to the *equivocal* generation of cholera, are so pointed and positive as to enforce belief. I own that, for myself, I was formerly of a different opinion. But a certain weight and amount of proof, as was observed by Cicero, is sufficient to render credible the most improbable events. The non-contagious commencement of cholera at Hamburg, Dr. Fricke's statement puts past all

question.\* Authors and authorities are equally positive, however, on both sides ; but on the side of immunity after exposure, and spontaneity of origin, eminently most numerous. We hope, in the progress of these remarks, to throw some light on this obscure and perplexing subject ; but would observe, by the way, that in this respect, cholera is directly the reverse of what smallpox is now—but exactly the same as it was, or appears to have been, in Sydenham's time.

The physicians of the three largest hospitals in Paris, have declared their disbelief of the existence of cholera contagion.

Are intemperance, and filth, and poverty, contagious, which produce it, and the diarrhoea which ushers it in ? Still the case of the man who went from Hawick to Norfolk to sell cattle, is a strong one in favor of contagion ; as is that related by Dr. Bronson, of Albany.† When witnesses on each side are equally positive, we must weigh their credibility ; or, if they are equally credible, we must compare the number of facts which they produce, and be governed by the majority of these.

Of 403 cases noticed at a certain place in the East, 157 of them were in 157 different families. And Mr. Fyfe, at Gateshead, attended 67 cases, of which 54 were in 54 families ; living in small unventilated houses or rooms, and all the well having unlimited intercourse with the sick.‡ But the instance given by Dr. Fricke, of Hamburgh, of the cessation of cholera in the cholera hospital, where all the inmates (and a great majority of them escaped the disease) were both miserably poor, and grossly intemperate, is very striking.§ Our forthcoming remarks will do something to satisfy ourselves upon these subjects ; but of their effect upon others, they alone can tell. The instances of immunity, however, have been so reiterated and palpable, as even to go far to do away the opinion of contagion among the common people ; which is a very rare instance, as with *them* every epidemic is contagious.

It will be remembered that smallpox, measles, chickenpox, and scarlet fever, are all diseases more modern than the works of any Jewish, Greek, or Roman writer ; no one of either of these nations, whose works have descended to us, having given any account of them : and, again, that these four eruptive diseases, or more especially the three first, were for the space of 800 years, or more, confounded ; supposed to be modifications of one and the same malady, and to have arisen from the same specific contagion. And even in the East, at the present time, the distinction afforded by autopsical inspection is very far from being clear ; nature having so confounded simultaneous cases, in different individuals, as to countenance the notions of Aaron of Alexandria, and Rhazes, more than 1000 years ago, of their being the same.

Should I here advance the idea that human actions, events and revolutions, influence even atmospheric phenomena ; produce changes in the weather and the seasons, giving rise to frosts shed upon the *lap* of summer, and summer suns shining on the snows of winter ; such an opinion would not be entirely new. Hints of this kind are to be found

\* See American Journal, No. XX., August, 1832, p. 477.

† See Boston Medical and Surgical Journal, Vol. VI., No. 19, p. 305. Also Vol. VII, No. 7, p. 112.

‡ See Dr. Kirk's interesting pamphlet.

§ See American Journal, No. XX., August, 1832, p. 479.

in Shakspeare ; but however these poetical flights may be, there is reason to believe that the atmosphere of diseases is influenced by the manners and customs, vices and economy, of man ; by what he suffers to accumulate about him, and by what he takes into his stomach. National and neighborhood customs, produce and change diseases. I have known a singular spasmodic kind of fits arise, during a religious awakening, in a number of young women who were its subjects, and apparently prove sympathetically contagious. The music of the violin, although not agreeable to their religious views, was in every case of the greatest benefit. Diet, dress, fasts, feasts, religious rites, and sometimes political institutions, theatres and armies, all influence diseases.

And yet, there is evidently a tendency in diseases to retain their identity, when not turned aside by some powerful agent ; as a proof of which, the description by Rhazes of smallpox is such, that even at this day, as we are told by Dr. Good, little or nothing is to be added.

New diseases are certainly rare ; and such changes in old ones, as to prevent their being recognised, are not very common. Old and forgotten diseases may, however, be reproduced by new customs, modes, and errors, giving rise to their exciting causes.

Aaron of Alexandria, who lived in 622, Rhazes, and Avicenna, all mention smallpox as occasionally occurring more than once in the same person. This would seem to show that it was then a disease of some standing ; for, according to Dr. Heberden, the instances of persons having it twice, or of so supposing, do not occur oftener than once in 10,000 instances.

The Sunday headache is an instance of an old and common disease, occurring on a particular day ; owing to religiously resting thereon, possibly aided by some change in quantity or quality of diet.

We, as relates to our corporeal origin, are from the East ; from that same quarter comes the smallpox, measles, typhous fever, and cholera.

The whole human world, the Egyptian mummy and the Cherokee, have the same number and kind of bones, limbs, muscles, and viscera. All pulses beat with fever, all skins are marked with eruptions, all bowels roll with cholera, from the same or similar causes. The E. I. Sun-derbund fever, as Bishop Heber informs us, is cured by wine ; and is probably the same as our typhus.

Now, although our anatomical structure is alike, and our diseases much the same, and although our susceptibility may be the same to receive them ; yet the customs of different nations may be more or less prone to generate and to spread pestilence, to render its symptoms more or less violent, regular or irregular.

The West is more homogeneous in the habits of its population than the East. The greater regularity of these, in Europe and America, has rendered the same maladies more definite in their symptoms and phenomena in the West, than they were or are in the East.

Hence, variola, varicella, and rubeola, are here distinct, which are there so indistinct as to be considered the same. There is a surprising and unvarying similarity in some things in the religious modes of Eastern nations, from the remotest antiquity.

The Jews, by the laws of Moses, had but one place of worship for

the whole nation—Jerusalem and its temple. Hence the propagation and spread of that great national terror, the leprosy ; and hence the final destruction of the nation, by pestilence, famine, and the Roman arms—the bulk of the nation being in that city, when surrounded and shut in by the Roman army.

So, at the present day, immense multitudes resort to the river Ganges, to Juggernaut and to Mecca, for the purposes of heathen and Mahometan worship. There is no other similarity intended in these facts, than that of the large collections of people of all sorts, men, women and children, on these occasions, which favors the generation and spread of pestilential diseases, in all countries. If cholera did not have its origin in one of these heterogeneous assemblages on the banks of the Ganges, it was prevalent among the multitude, and spread to distant parts by them.

The multiplicity of places, in Christian nations, where public divine worship is held, prevents such immense gatherings and their ill effects. Armies, however, and their retinue, from the time of the crusades to the time present, have not been free from the imputation of generating infection and spreading contagion.

The plague of Athens arose during a war. Pericles shut up the people in that city, whilst the country at the same time was laid waste by armies. In our own country, in Mr. Madison's short war, from 1811 to 1814, we had abundant proofs of this tendency. Spotted fever, typhous fever, pneumonia typhoides, and diarrhœa, swept off numbers of officers, soldiers, and citizens.

I well recollect that the late Professor Wistar, of Philadelphia, in a conversation upon the subject with the present writer, imputed to contagion from the army, the introduction of the malignant typhus into the Southern States ; which he traced on the roads and stations of the Southern army and its divisions as they returned home, and from whom he supposed it was communicated to the citizens. Infection causes an uncertain species of disease ; contagion a specific one. There is therefore some doubt about contagion in this instance.

A heterogeneous animal effluvium is more to be suspected than one to which the bodies of men have become habituated. The miasm of prisons, and the clothes of prisoners, poison those without, whilst they themselves are unaffected. Cities and armies have so far been most affected with cholera. It has seldom swept off the sparse population of country places. Russia is perhaps a partial exception. The filth and heat of Russian cabins afford a congenial air for infection and contagion.

It is not probable that any universal principle in the atmosphere, deleterious to human health, will ever be discovered, and certainly never has been. A succession of seasons, having something peculiar in them in relation to each other, primarily affect the food, and secondarily those, of a particular constitution, who live upon it. But even allowing the cause of a given malady to be atmospheric, it is by no means necessary to assume that this cause is a *miasm*. On this point medical reasonings have been quite too limited. Miasm, or gas, is not always generated in the atmosphere ; but in man himself, and in what is about him. It may arise in the *prima viæ*, in the blood, or in the secretions. Heat and cold are both secreted by animals. A dog's nose is always cooler than

the air in summer, and colder than the other parts of his body—owing to the secretion of cold. The cold tongue and cold evacuations of cholera patients, cannot be owing exactly to the *non*-secretion of heat. The morbid motions actually secrete cold; at least if it be true that the tongue, surface, or sweats thereon, and dejections, are colder than the atmosphere, and colder than other parts of their bodies, whither this cool secretion does not extend. The secretion of cold, or of increased heat, may take place in other parts of the body beside the glands, and in other diseases beside cholera, and serve to throw light upon symptoms hitherto obscure. The extremities of the arteries secrete pus, as De Haen long ago observed. Now the atmosphere or aliment may give a new motion to the arteries and glands, and thus produce fever, eruptions, and cholera, with or without any miasm being produced, and merely by a morbid motion. But the *sensible* qualities of the air, since the time of Sydenham, have been too much lost sight of. All the world will admit that extreme heat and extreme cold, or their effects, by preceding and present discrepancies, do affect the health and life of man. Sitting by an open window, when the body is heated and in a state of perspiration, often produces indisposition, by sensible means. Damp, drought, and frost, also affect the human family and the food on which they live.

A certain quantity of *malaria* may be borne with impunity; but when this accumulates to a certain amount, or deteriorates to a certain degree, sickness is the consequence—not in all, but in those previously predisposed by poverty, debility, and intemperance.

It then happens, however, that the emanations from the sick, the dying, and the dead, add to the pre-existing *malaria*; and the consequence is, that the temperate, the sick, and the hale, occasionally fall victims to an epidemic. And on other occasions this law is reversed, and the most healthy are the most liable.

Winds are the *disinfecting* agents of the earth's surface, and by this means become the *infecting* agents of man's system. A dry wind carries off more moisture in a given time from a damp spot, than a hot shining sun exhales.

The cholera has been connected with river banks, marshy places, foul streets, and rear dwellings, shut out from free, pure air, and thickly populated.

The noxious air which gives a local origin to sickness and death, is purified, however paradoxical it may at first seem, *by the dead*.

Those who die, absorb an immense quantity of pestilential gas, in consequence of which every medical man must have observed in some fatal cases, during epidemics, disease enough in one patient to kill a dozen. With the inhumation of such dead bodies, a very great quantity of *malaria* is buried. Hence it is that very fatal diseases seldom last long in one patient or in one place. The local or occasional cause is soon extinguished, although often with the extinction of very many lives.

It is from this very law of epidemics—I mean that of a vast amount of disease accumulating in one fatal case—that others of the same family are less apt to be affected with the same disease, than when the sick recover or are recoverable. I say *recoverable*; for it is well known that recoverable cases sometimes prove fatal by some mismanagement, either

of the sick themselves or their attendants, and then this melancholy law is not sustained.

Diseases are probably imported in the following way :—The leaven is carried from city to city, from country to country, and from continent to continent, in a small and very inappreciable quantity, by men or by goods. If it, on its first arrival, falls in with a living human body, whose system is in a state to receive it, it may be immediately thus developed. But it often leaves its germ in the impure air and filth of foul streets, oyster cellars, or close apartments, among washerwomen, and their washed and unwashed clothes. It may be brought by, and may be increasing in, the foul dress of a sailor or fisherman, whose own body resists its action ; but who may yet sicken those who are predisposed or unseasoned, in a part of the city at a distance from where he lands. Or it may happen that no one sickens in the town where he *first* lands, owing to its purity and cleanliness ; but upon going to another city, this immunity may not be sustained.

The germ, in any manner introduced into a country, may spread as indefinitely as it finds foul air, foul clothing, or foul stomachs, till it is concentrated in the dead, and buried out of the world with its numerous victims ; and then the epidemic ceases.

When infection is once generated of sufficient intensity to produce malignant disease and death, a process appears to be developed similar to *leavening*. The mite of infection is the leaven, the impure atmosphere of a city is the lump. A small quantity of leaven is capable of introducing a new action into a large quantity of unbaked bread, otherwise termed paste or dough, and of assimilating the whole into its own nature. An immense tub or butt of liquor, into which a spoonful of yeast is introduced, displays this principle by an action still more rapid. In order for this leavening principle to take effect, however, the lump and the liquor must be capable of fermentation. The lump must not be of pulverized chalk, or lime, or gypsum, nor any other material *resembling* flour only ; but it must be flour itself. Nor can the liquor, into which the yeast is introduced, be pure water or pure spirit. It must be *wort*, or something of like quality.

The atmosphere is capable of receiving the pestilential gas, or infectious principle, when it is charged with foul air from animal decomposition, mixed with vegetable putrefaction, and moistened with water. A mixture of sea and river water about the places where large rivers empty into the sea, is to be suspected of sometimes contaminating the air. The intermittent fever about New York and on Long Island, is, I suspect, owing to this cause. This may be aided by a portion of miasm, brought by the Mohawk into the Hudson, and by the latter to the shores of these places. The Mohawk, throughout its whole length, from its source to its disemboguing into the Hudson, with all its branches, passes through fever-and-ague districts.

The leavening principle acts not universally, but only in those localities where filth pollutes the air ; and on those bodies predisposed by hereditary idiosyncrasy, or by habit, or by error, or by high health or low health, to receive it. It may be received by the mouth, and swallowed with the saliva ; or inhaled by the lungs. It may be carried by winds, or



by clothes, or by passengers, to places at a distance ; and if in a very concentrated state, may infect a few where the atmosphere is pure from local taint. But it can operate extensively only in cities and streets, and near docks, and river mouths, where there is local impurity ; or upon armies and crowds, whose breath has destroyed the pure oxygen. Hence sporadic cases occur of great malignity, but the leaven is lost most happily with the case. The cause and its consequences carry the creature to its creator, and the contagion from creation. And thus is good commensurate, in some measure, with evil.

There is sometimes no sickness in miasmatic alluvial situations, on and near the banks of rivers, whilst at the same time the hills and highlands in the vicinity are suffering from a destructive epidemic. In such cases the miasm suddenly rises from the alluvion, too sudden indeed for infection to ensue, and lingers and settles around and over the hills and highlands. This takes place upon the aeronautic principle. The miasm of the valley is lighter than the superincumbent air.

But if we inquire why this miasm, when it begins to rise, does not keep on and rise above the hills into the etherial regions, we may answer that it is the same cause which prevents the clouds from rising to the planets ; the attraction of terrene matters below, and the repulsion of hydrogenous gas above. The smoke of chimneys may sometimes be observed descending from the chimney tops towards the earth, instead of, as usual, rising upwards.

There are principles with respect to tornadoes, hail storms, and thunder showers, which apply to miasm and its effects. All travel in veins, and destroy but partially. One farmer's field will be ruined, whilst that of his neighbor adjoining is uninjured. Nay, a part of the same small garden, having the same owner, is frequently cut off, whilst the remnant retains its freshness and vigor.

Life is motion : health is regular and easy motion ; disease is morbid motion ; and death is rest or the cessation of all motion. The morbid motions of disease may kill, without deranging the structure. Hence, neither the eye nor the knife of the anatomist can point out either the causes or consequences ; or if they exist, in some derangement of parts, can he discriminate the cause from its effects.

*Cholera*, consisting in a morbid catenation of motions, has had very little light shed upon it by the numerous *post-mortem* dissections, nor has the analysis of the blood been more satisfactory. It must be pathologically viewed as a train of motions, highly malignant and rapidly destructive. The secretions, the circulation of the blood, the nerves and muscles, the alimentary canal, are all undergoing ruinous morbid motions, by means of spasms, and that very rapidly. The remedies which will break up and overcome these spasms are the most effectual. Safety here depends upon facility. There is no time to be lost ; the quickest remedy is the best.

*Emetics*, therefore, being the most speedy antispasmodics, are the best of all the remedies yet discovered, and the only ones capable of giving this rapid disease a check, and the system, in time, a sufficient counter shock.

*Cholera* does not prove to be *typhous fever*, and the ultra-stimulant



plan does not appear to have succeeded. Nor is it an inflammatory disease, but a spasmodic. M. Magendie, with his hot wine and punch, lost rather more than half his patients ; nor has the plan of Broussais, with his bloodletting and ice, much to boast above it.

We are of the number of those who are ready to reverse our opinions, when not founded on facts and experience.

The puking, the diarrhœa, the rice-water secretions, and the cramps, of cholera, are all spasmodic, and are all checked by emetics.

The treatment adopted heretofore by most of the Parisian physicians, has appeared very insignificant, owing to the frivolous doses of medicine which they have prescribed ; they having in most instances appeared to us entirely disproportioned to so herculean a malady as cholera. It is new, and quite recent, and quite agreeable, to hear them tell of an emetic of 25 or 30 grains of ipecac. Yet this is the fact. After enumerating the premonitory symptoms, the Paris Medical Gazette says, that 'recourse must be immediately had to ipecacuanha, which is to be administered in doses of twenty-five or thirty grains, at two intervals of twenty minutes. This evacuant,' it is said, 'has the marvellous property of suddenly checking the diarrhœa, and even the vomiting, if this exists.'

On this side the Atlantic, the same remedy comes recommended by such authority and with such integrity as to arrest attention. Dr. Spencer, now President of the New York State Society, speaking of the first stage of cholera, says, that 'after diarrhœa commences, although many might recover without, there is no security short of an emetic.' For this purpose he would give ipecac., or a combination of ipecac. and tartar emetic, and promote the operation with thorough-wort tea, so as to produce both vomiting and sweating.

Dr. Hopkinson, of Philadelphia, is equally decided in favor of emetics. His emetic consists of two large tablespoonfuls of common salt dissolved in a pint of water, of which he gives a tumblerfull for a dose. He tells us of this emetic having brought back the pulse after it had ceased ; and that his patient recovered from a state of collapse.

A third kind of emetics was introduced by Dr. Smith, of Newcastle ; viz. mustard, in the dose of two drachms in a cup of warm water, repeated, if necessary, every ten minutes. Two reasons appear to have induced Dr. Smith to select this substance for an emetic. The first was, that he had tried it on his own person in the West Indies ; and the second, that it *was a popular remedy among the pitmen for asphyxia from choke damp!*

The saline and mustard emetics are allowed in a state of collapse. Not so of the ipecac. and tartar, recommended by Dr. Spencer ; they must be used earlier, or not at all.

Emetics are antispasmodic and stimulant, and do not debilitate, when they do not prove cathartic ; but the latter effect should be sedulously guarded against in cholera, and other diseases of debility. The sulphate of zinc, although I do not recollect to have seen it mentioned, would appear to be a proper substance, and indeed the most proper of all, from the quickness of its operation and its tonic powers.

As the remote effects of ardent spirits and laudanum are much to be dreaded, if their use is carried to any considerable extent, and as some

stimulant remedy seems indispensable, the one used by Dr. Hopkinson it seems proper here to notice. It is composed of cayenne pepper and cloves, of each a tablespoonful, to a pint of boiling water, to which may be added a little camphorated spirits. The dose is, every ten minutes, one or two tablespoonfuls. Dr. H. would however use this but sparingly, and in general avoid stimulants. Calomel he would, on the contrary, use very liberally.

As Professor Tully, of Yale College, has proved that *opiates* are not *stimulants*, it would not be surprising for the world to find itself in an error respecting ardent spirits. Both are stimulants or excitants of nervous energy ; but do either produce fever ? I suspect not, unless aided by other causes. Intemperance, however, renders both typhous fever and cholera more mortal.

I once visited a female patient, 75 years of age, whom I found as usual in a warm room, with plenty of bed-clothes, and all the comforts of life about her, for she was sick, but at this time intoxicated ! Seldom finding a patient in such a state, I paid some attention to her present situation. I found her feet, hands, and skin, cool, and her pulse not quickened ; all contrary to my expectations. Her disease was pyrosis, her potations French brandy.

The inflammatory diathesis of former days, when beef, pork, soups, and milk, were the diet, and cider the drink, has been declining for a number of years. The universal introduction of tea and coffee, and especially the use of ardent spirits, have introduced the nervous diathesis. The stamina and pulse have declined in vigor ; and this has been aided by the new modes of traveling by steam-boat, stage, and rail-road, instead of on horseback. *At length a frightful manifestation of this diathesis has fallen on the world, in shape of the spasmodic cholera.* Opium in the East, and ardent spirits in the West, have doubtless had similar effects. Is it reasonable to suppose that these articles, so mischievous in producing the disease, can be extensively used in its cure ?

Opiates are accused of aiding cholera in one of its worst symptoms, viz. the *non-secretion* of urine. The spasms after death would seem to place cholera at the very summit of all spasmodic diseases. Even the dead point at the pathology and treatment of this malady ! The thick black blood found in the vessels of the dead subjects, must be owing to the evacuation of all the thinner parts by emesis, sudoresis and dejections. The fluid from which urine ought to be secreted, passes off by the watery diarrhœa ; and sometimes has, as we are told, a resinous smell. The occasional extravasations, the shriveling of the hands, the change of voice, the black bile of the gall-bladder, sometimes with a little yellow or green bile squeezed from the liver ; the suppression of urine, the contraction of the urinary bladder, the external parts of the duodenum and colon in contact with the gall bladder ; all these phenomena are to be referred to spasm, local or universal spasm—the contraction of the stomach, or its distension by serum squeezed into it, and the loss of *embonpoint*, to the same.

Of the antispasmodics, ether and assafoetida ought to have a passing notice ; the former especially as allaying the puking.

Of the vast number of documents on cholera, there is not one which

I have seen so completely satisfactory as to its spontaneous origin, as that of the Hamburg physician before noticed. The physicians and Police Board of Hamburg were anxiously watching the progress of the disease in the North of Europe; yet it had not approached that city nearer than 30 German leagues, from abroad, when it broke out there; and it was fully ascertained by the *police* (here was no professional bias) that no connection had been had with any straggler or stranger, nor had one of the inmates of the 'deep cellar,' where it began, been abroad. Here was a *casual* origin, and a cessation equally remarkable.\* Into a hemp magazine, the miserable wretches of the deep cellar, with others of their class, 'two hundred and thirteen' in all, 'the majority of whom were habitual drunkards,' were removed. 'Among these persons, only twenty-seven individuals were attacked with the disease;' leaving one hundred and eighty-six of this highly predisposed class unaffected.

In this instance, we suppose that the same kind of pestiferous miasm and motion was generated in the first passages of the person who was first attacked, that caused the disease in other parts of the world. The predisposition, i. e. diarrhœa, we are told had been prevalent in the city, previously to the commencement of cholera. But the great mass of infection was concentrated in those of the twenty-seven who died, and was with them buried out of the world. The prompt attention of the Police Board to removing the impurities of the city, cleansing those collected in the hemp magazine, restraining their drunkenness, and giving them a sufficiency of wholesome food, of which they had been formerly destitute, prevented the leaven of the disease from finding in the air, and in the stomachs of those in the hospitals, materials for further mischief. Hence it became extinct.

Cholera can originate easier spontaneously, in those predisposed by filthy dwellings, poverty and intemperance, than it can continue where all these contingents are reversed.

*Lebanon, Ct. October 4th, 1832.*

☞ Since the writer commenced the foregoing remarks, he has received from a highly respectable gentleman in New York, Mr. S. Ward, 'Brief Directions for Treatment of Cholera,' originally written for a friend, by Dr. Francis. Dr. F. is of opinion that no one need get the cholera, who pays great and daily attention to his bowels. He mentions, for this purpose, castor oil, rhubarb, and calomel, in case there is any appearance of diarrhœa. His directions are judicious. In general he disapproves of laudanum and camphor. He mentions a liniment composed of tincture of capsicum, spirits of camphor, and spirits of turpentine.

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\* The reader is desired to examine these statements, in the American Journal, No. XX., p. 477.

## SPORADIC CASE OF MALIGNANT CHOLERA IN WESTON.

THE following letters from Dr. James, giving an account of an interesting case of the Cholera in a sober and secluded individual, have been politely handed us for publication by the distinguished practitioner to whom they were addressed.

Weston, Mass. Sept. 20, 1832.

DEAR SIR,—On the 23d of September, 7 1-2 A. M. I was called to Mr. William Coburn, aged 42, who had had diarrhœa for the three previous days, occasioned by eating grapes. Found him suffering from severe cramps of the arms, legs, and chest. His voice much altered, the discharges of the appearance of rice water and very copious, an entire suspension of the biliary and urinary secretions, tongue blue.

11, A. M. Cramps had lessened, vomiting ceased, dejections the same.

7, P. M. Cramps not severe; bowels quiet; face, arms and hands, icy cold; pulse feeble; parts of the body slightly livid.

September 24th, 8, A. M. Had been raised in bed and fainted, followed by ringing of the ears. Tongue and breath cool, no pulse in the radial arteries, feeble in the carotid—cheeks and nose very cold, feet cold, arms continued icy cold, legs slate color, with dark spots of the size of a pea and less; many other parts of the body more or less livid; folds of the skin, produced by pinching, very slowly effaced—voice much suppressed, intelligence perfect; there had been no secretion of urine for the last 24 hours.

10, A. M. Tongue and breath cold. From this time he sunk rapidly, and died with little suffering between eleven and twelve o'clock. Considering the above as a strongly marked case of Cholera Asphyxia, and being the first that has occurred in Weston, I take the liberty of communicating the same.

Yours, very respectfully,

BENJAMIN JAMES.

\_\_\_\_\_, M. D.

Weston, Oct. 5, 1832.

DEAR SIR,—Yours of the 30th ult. has just been received. During the last three months, there has been an uncommon number of cases of cholera morbus in this town, not more severe than in former seasons, and they have readily yielded to medicine. There have been also many cases of diarrhœa, which have required repeated alternate cathartics and anodynes, some of them attended with soreness and pain of the bowels, and cramp of the abdominal muscles, and all of them totally different from the usual complaints of the season. I have noticed, in several instances, an unusual absence of bile in the evacuations. Dysentery, which, for the last eighteen years, has commenced in July or August, has not as yet appeared among us.

Mr. Coburn's residence is three quarters of a mile from the public road, and one quarter of a mile from the nearest building. The farm is generally elevated, and has not been affected by the recent frosts which have been so destructive in lower situations. There are, about the place,

no low grounds of any extent, or which have ever been suspected as sources of disease. The family have paid particular attention to the cleanliness of the cellar; as without this precaution, the milk, which is deposited there, would be injured. There is nothing about the house or vicinity of a noxious tendency, unless we might suspect the manure which is always collecting and accumulating in the sties and barn-yards of every farmer throughout the country. Mr. Coburn had not been beyond the limits of the town for the six months preceding his death.

The above and my former communication are at your service in any way that may promote the public good. Yours, respectfully,

BENJAMIN JAMES.

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## BOSTON MEDICAL AND SURGICAL JOURNAL.

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BOSTON, OCTOBER 17, 1832.

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### THE CHOLERA IN BOSTON.

SINCE the order of the City Government to close the Cholera Hospitals, there have occurred three or four cases manifesting the symptoms of the malignant form of the disease. Less than this no one could have reasonably anticipated; and we still have abundant cause for thankfulness that we are spared its usual desolation. The number of deaths by this disease, the past two months, has not much if at all exceeded the usual mortality of the same season in other years from the various forms of cholera morbus, and there now exists not the slightest cause for excitement or alarm on this subject.

It should however be borne in mind that the occasional eruption of a single case is evidence that the choleraic atmosphere is with us still. It is the caution of the inhabitants with regard to diet and cleanliness, that has been and still is the means of preventing a more general prevalence of the disease. Let not our exemption lull us into false security. The directions that have been given, and repeated again and again, respecting the quantity and quality of the articles used for food, should be as strictly observed now as ever. It has been a common remark, that places which have been visited by the cholera have experienced a return of the disease after it had abated and been supposed to be at an end. Little doubt can exist that the cause of this second visitation has been the laxity in the diet and habits, which so naturally follows the settled belief that the destroyer had passed through the place. Another circumstance that tends greatly to encourage such a laxity among us, is the season of the year. The approach of cold weather is supposed to be a security, and to justify some more indulgence in the gratification of the palate, some more freedom from the restraints under which people have so long retained

themselves. But let it be remembered that at Sunderland, after the occasional occurrence of a case for several weeks, this disease broke out in all its malignancy as an epidemic in November; and whether we are safe or not from a similar calamity, depends greatly—we would enforce it on the minds of all—on the choice of the people themselves.

#### LECTURES ON PHRENOLOGY.

Dr. SPURZHEIM's Lectures on Phrenology continue to attract crowded and delighted audiences. The facility, spirit and clearness with which this able physiologist illustrates his favorite science, give an interest to his lectures that few men can infuse into exercises of this description. Most, if not all his auditors rise with reluctance after listening an hour and a half to his extemporaneous instructions. Among the constant attendants on this course, are our most distinguished physicians, lawyers and divines, and citizens best known for their scientific and literary attainments; and although we cannot say how many of these are convinced of the correctness of Dr. Spurzheim's peculiar science, most are persuaded that there is more truth in it than they had before suspected, and none can fail to be forcibly and favorably impressed with his ideas of education and of intellectual philosophy. For ourselves, we believe that the efforts of Dr. S. will form among us a new era in education, and open, to the minds of the most intelligent, new and correct views of their moral and intellectual powers, and the best means of cultivating them all, in the most rational and successful manner. The course, we are pleased to learn, is to be given at Cambridge, Salem, and other places, and probably repeated in this city during the winter.

*Muscae volitantes*.—M. Neuber attributes *muscae volitantes* to the presence of certain parasitic productions, analogous to the microscopic algi. He thinks that these anomalous productions have their seat in the aqueous humor, and in support of this opinion he cites a case related by Rust, in which the *muscae volitantes* disappeared after the evacuation of the aqueous humor. The therapeutic indication would be to destroy the parasites, or to separate them from the tissue where they have taken root. M. Neuber thinks that we may perhaps succeed in destroying them by the employment of the negative pole of a galvanic pile, but he adduces no fact in support of this conjecture.—*Bulletin des Sc. Medicales*.

*Chloruret of Lime and of Soda in the Treatment of Venereal and other Ulcers*.—Dr. Mene, of Vaugirard, speaks very favorably of these remedies in the treatment of venereal ulcers of the prepuce, amygdalæ, palate, &c. In one patient, in whom the greater part of the glans had been destroyed by chancres, a cure was effected in eight days by repeated lotions with the chloride of lime. Dr. M. has derived equal advantage from these lotions in atonic ulcers, which resisted all other remedies employed

to produce cicatrization. They were healed by washing them with the chloruret, and afterwards covering them with compresses steeped in that liquid.—*Gaz. Med.*

*Mustard Emetics in the Treatment of Cholera.*—Mustard emetics were introduced into the treatment of cholera by Dr. Smith, of Newcastle. He had tried it in his own person, when resident in the West Indies, and, being aware that it was a popular remedy among the pitmen for asphyxia from choke-damp, he was led to suppose that it might be of service in rousing patients in the collapsed stage of cholera. His suggestion was acted upon at Sunderland, through Dr. Gibson, it is said with beneficial results, and it has since been used there, at Newcastle, and elsewhere. Mr. Greenhow says, that 'in the cold, blue, pulseless stage of the intense type of the disease, I believe it to be a very valuable remedy in relieving the irritation of the stomach, and exciting reaction; but when full vomiting can be excited by milder means, especially when it can be done by copious draughts of warm water only, I consider it safer to avoid the irritating effects of the mustard.'

The remedy is given in doses of two drachms in a cup of warm water, and repeated every ten minutes till full vomiting ensues.

*On the Sleep of Plants.*—M. Virey, in a memoir entitled, *Flore Nocturne* (*Flora nocturna*), announces the following results or laws which he has deduced from his researches on this subject. Cold and humidity diminish the transpiration of vegetables; the sap, then, instead of ascending to the summits of the leaves and flowers, as during the day, descends towards the roots. Hence, the sap vessels of those parts, frail and fine as they are in many plants, become almost empty and contract by their own elastic force. This is the reason why so many compound flowers, the Malvacæ, the Convolvuli, &c. close during the night, or even when the sky is covered with clouds. For a similar reason, a numerous class of plants with pinnated leaves, fold them and sleep during the night. The returning warmth of the sun again sets the sap in motion, and again invigorates the leaves and petals. The heat and light dilate the vessels with a sort of turgescence, and expand the foliage until the return of night again drives the sap from their delicate vessels. But why is it otherwise with nocturnal plants, which appear to languish and to be overcome during the day, and unfold their beauties only when the sun is withdrawn? It is because his ardor acts too powerfully upon the frail texture of certain petals—evaporates too rapidly their nutritious juices, and causes them to close. But during the freshness of the night, these juices remain in the tissue of the plant, fill their tubes, and unfold their surfaces to the atmosphere.—*Rev. Encyc.*

*Illicine—a Remedy in Intermittent Fever.*—Doctor Emile Rousseau has just published his own observations, together with those of eminent practitioners in civil and marine hospitals, as well as those of various private physicians no less estimable, all uniting in ascribing to the leaves of the common Holly (*Ilex aquifolium*) great efficacy in the treatment of intermittents. They consider this indigenous plant as the powerful succedaneum of quinquina and the sulphate of quinine. Several of them agree in considering the holly as superior to quinquina. Dr. Rousseau deserves great credit in bringing the virtues of this plant so fully into notice. He



has succeeded in obtaining its active principle in an isolated form, and has given it the name of *Ilicine*.—*Rev. Encyc.*

**Cause of Goitre.**—M. de Humboldt communicated to the French Academy, in October, 1831, some results obtained by Boussingault, in his researches into the causes of goitre, in Columbia. The latter ascertained that in every place in which goitre is very common, the water holds in solution only a very small quantity of air. It is well known that the production of goitre is very often attributed to snow water. This agrees very well with the discovery of Boussingault; since water, in freezing, abandons a great part of the air which it held in solution, so that when melted it is almost wholly free from air.—*Ibid.*

**To protect Iron and Steel from rust.**—Heat the object until it burns the hand; after which, rub it with very white wax. Heat it a second time in order to melt off the wax, and then rub it briskly with a piece of cloth or leather to impart to it brilliancy. This operation renders the metal proof against rust from exposure to the atmosphere.—*Recueil In.*

Whole number of deaths in Boston for the week ending Oct. 13, 31. Males, 13—Females, 18.  
Of consumption, 4—stoppage in the bowels, 1—dropsy on the chest, 1—cholera malignant, 6—old age, 2—typhous fever, 4—dysentery, 1—infantile, 2—scarlet fever, 2—dropsy, 2—hooping cough, 1—inflammation in the bowels, 2—delirium tremens, 1—unknown, 1—teething, 1—scirrhous of the stomach, 1.

## ADVERTISEMENTS.

### NEW WORK ON MINERALOGY AND GEOLOGY.

CLAPP & HULL have just published the first volume of 'Familiar Lessons in Mineralogy and Geology, designed for the use of young Persons and Lyceums. By JANE KILBY WELSH, Author of "The Pastime of Learning, with Lessons in Botany."'

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The author and the publishers have received testimonials from gentlemen conversant with the sciences treated of in this work, of their favorable opinion of its merits, some of which are given below.

*Extract from a Letter to the Author, from Professor Hitchcock, of Amherst.*—'Allow me to say, that I am pleased with your work in general, and think that by interweaving domestic scenes with Natural History, you will attract more to its pages than by a naked exhibition of facts. I think it will do much to advance the cause of Natural History, of Virtue and Religion.'

*Extract from a Letter to the Author, from Professor Webster, of Cambridge.*—'The perusal of your work has afforded me much satisfaction. Many works, designed wholly for young ladies or beginners, are too learned. You have made Geology far less repulsive to young minds than any one who has preceded you. I beg you to be assured I feel a deep interest in your work. I wish you all the success that you can desire, and shall be happy to aid you if in my power.'

*Extract from a Letter to the Author, from Professor Nuttall, of Cambridge.*—'I have looked over your manuscript, and think it will prove useful and acceptable to those who wish a plain introduction to Mineralogy, &c.'

*Extract from a Letter to the Author, from Mr. Francis Alger, of Boston.*—'I have read with no little interest the manuscript which you have entrusted with me, and am satisfied that its publication should not be delayed. By blending, in the form of domestic scenes, lively moral and religious reflections, with naked facts and details in science, you have given a character to your work, which happily adapts it to the wants of young students; while its easy, familiar style, and conformity in arrangement with the latest and most approved systems, cannot fail to lay open to their minds, as well as to general readers, a competent knowledge of two of the most important branches of Natural History.'

*A Letter to the Publishers, from Mr. Josiah Holbrook, of Boston.*—'I have lately examined the manuscript of a treatise on Mineralogy, by Miss Welsh. The plan, materials, and spirit of the work, I have no doubt, from the slight examination I have been able to give it, will render it an acceptable gift to the cause of Science and of Popular Education, and am therefore glad to learn that you have concluded to give it to the public.'

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